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ETHNOLOGY.—*International and interclass misunderstandings.* JOHN R. SWANTON, Bureau of American Ethnology.[1]

Both individually and in the mass man tends to see in the world about him, animate and inanimate, what he feels within himself. If "God made man in His own image," it is equally true that man has ever since insisted in making over God into his. Not only so but, until the most recent times—and even now more than we are willing to admit—man has made over nature. In scientific terminology he has "anthropomorphized" it. The student of primitive mythology is familiar with this process, and the student of the child knows how natural it is to an immature mind. But while those of us who esteem ourselves "civilized" no longer see human personalities in the animals, plants, and natural phenomena, and refrain from worrying ourselves about hatreds or friendships on their part which are nothing more than reflections of our own psychological processes, we are far from having conquered the same tendency as it is applied to our fellow man. Of course our fellow man does have mental processes similar to ours, and it is therefore possible for us to interpret them to our mutual advantage. We do this daily. What I have reference to is the tendency that each evinces to interpret the thoughts and actions of another, not in terms of human mental processes in the broad sense, but in terms of his own individual processes. We are familiar in daily life with the man who suspects everyone of insincerity or dishonesty because he is insincere or dishonest himself, and to a somewhat less degree with the man who is easily cheated because

[1] Received June 14, 1920.

double-dealing has no abiding place in his thoughts. The problem of rendering justice to the intentions of our immediate neighbors and associates is, however, a matter of individual ethics and must be considered by each as his personal problem. What I wish to call attention to here is a similar attribution of motive as between groups of people, races, nations, classes, because in it is to be found the source of endless misunderstandings and the seed-bed for a large part of the controversies and wars which have afflicted mankind.

Every human group assumes that its peculiar views and customs are the normal, sane views and customs which everyone should hold, and that the deviations which are observed among its neighbors are departures from that norm which prove them to be inferior creatures, to be tolerated, if necessary, and suppressed, if possible. The home people being normal and the foreign people abnormal, one should expect in the latter not merely abnormal ideas and actions but even abnormal physical characteristics. Hence those persistent reports of cannibals, Amazons, centaurs, men with eyes in their breasts, and so on. Within the memory of the writer a book of African travel published by Harper Bros. was advertised to contain arguments for the existence of "tailed men" in Africa. It is only in recent years that the world has been obliged to content itself with pygmies and give up all of the other abnormal races for which it had been eagerly looking. In abandoning its mythic race with physical tails, however, the world has been unable or unwilling to give up its men with mental tails, *i.e.*, mental abnormalities. Even neighboring, cultured peoples are called "queer," or "funny," simply because they are different, and there is nothing that the average civilized human being is unwilling to believe regarding the more primitive peoples of the earth. This view was unintentionally encouraged by some early anthropologists who in their heroic efforts to divest themselves of preconceived ideas regarding the lower races almost removed the latter from the human category. They deceived themselves and their readers alike, by assuming that to be most primitive which was most diverse from that to which they and their own

particular branch of civilized humanity were accustomed. Tattooing, head-flattening, labret-wearing, scarification, marriage by capture, "totemism," apparently meaningless taboos, sanguinary rites—if such could be found—although these did not occur in one and the same tribe and frequently not in those most primitive, were dragged from their natural connections and mercilessly heaped upon a theoretical "primitive man" who never had any objective existence. The origin of each of these peculiar customs was then made the subject of voluminous studies and accounted for in ways no less peculiar, all tending to mystify the already over-stimulated public in a very much greater degree.

That all of these things may be accounted for by referring them to common human instincts acting under diverse conditions is more and more clearly apparent the farther ethnological studies are pursued. We have only the same mind expressing itself diversely, the divergencies being added to and acquiring the sanctity of custom and law, generation after generation, until they present themselves to other races as bizarre and unnatural.

While all such collective beliefs and customs are not of equal value and some are of no value at all, it must be remembered that this applies to peoples alike. Civilized man, having had the benefit of a greater accumulation of experience, longer in time and drawn from a wider area, naturally has more well-grounded ideas and better tested customs, or perhaps one ought to say fewer ill-grounded ideas and badly established customs, than his savage brother, but he must remember that his advantage is only one of degree. He and his *do not* constitute a norm from which all other races and peoples are to be judged. Just as the Copernican and evolutionary theories disillusioned him regarding his physical immutability, so he must disillusion himself regarding his psychical immutability. There is no more singularity in having a black skin and frizzly hair or a yellow skin and straight black hair than in having a fair skin and wavy hair. It is no more odd to pierce the nose and deform the head than to pierce the ears and deform the waist. To acquire one's name from one's mother's family is even less unnatural than to take it from the father's kin. Paint as a personal adornment

is common to both savage and civilized society, and the "full dress" of a primitive belle is often more ample than that of her civilized counterpart. It is no more depraved to abandon the aged and infirm to die—especially when other members of the band may have difficulty in keeping alive themselves—than it is to allow thousands of one's fellows to be born into the slums found in some of our great cities and drag out there the miserable existence to which they are condemned. The savage sometimes fasts and scarifies himself in the hope of obtaining help from imaginary beings and becoming thereby rich and successful, but this infliction is temporary and rarely results in permanent injury to the devotee, while civilized men in pursuit of fortune throw over their health and everything else that would make the fortune worth having. The savage sometimes resorts to human sacrifice, generally of men from other tribes, but for his own self-advancement; the white man too frequently permits a slow sacrifice of other members of his own nation.

Aside from misunderstanding the nature of savage customs and beliefs in themselves and an accompanying obliquity regarding the customs and beliefs of his own people, civilized man constantly does injustice to his primitive brother by interpreting customs as exhibitions of wilful moral depravity. The immobility often displayed by Indians on meeting after a long period of separation is attributed to coldness of disposition. The great numbers of tasks which savage women perform are thought to be arbitrarily imposed upon them. The indignities heaped upon captives or persons cast away among primitive people by accident are cited as proofs of a brutal and bloodthirsty disposition. And the ease with which such peoples credit the pronouncements of their medicine-men is, of course, a clear demonstration of an innately "superstitious" temperament. All of these things are held up as so many evidences of "naturally" depraved minds. One writer, observing that the Indians among whom he was traveling applied the terms "father" and "mother" to a number of different people, inferred that the relationship was in doubt and that their morals must be of the loosest character, being entirely ignorant of the fact that these terms were

extended as "etiquette terms" over a great number of persons of the same clans as those to which the true father and mother belonged. Depravity there is among primitive people as among civilized races, and, as with us, too much has from time to time become embodied into custom and law. However, it would certainly not be just to assume that any people are depraved merely because they conform to the customs and laws in which they have been brought up. Particularly, it would not be fair to interpret customs and laws which are the expressions of one interpretation of morality in terms of customs and laws representing different interpretations.

Unfortunately this lack of appreciation of primitive mentality has resulted in an ignorant impulse on the part of representatives of so-called higher races to take such esteemed backward peoples under surveillance with the idea of making them over into at least outward conformity with civilized views of what is right and proper. They must be given civilized dress, taught to live in civilized houses—however unsuited to their climate—made to marry and rear families in accordance with the paternal customs and ideas of the higher race, and proselytized into the religion or religions dominant among the latter. Particularly they must be kept in "tutelage" until they are "fitted for self-government"—which can only mean a government after the pattern of one of the more developed states, with all its uses and abuses—for, until the white race came in upon them, there was not a single people that did not ordinarily govern itself.

"Tutelage" of a primitive people has just this meaning and just this justification, that, since the peculiar civilization of western Europe has in the last four centuries spread so rapidly that it is invading all corners of the earth, between their past isolation and their future adaptation to this culture the backward peoples must experience a transition period which may be one of "tutelage" or not, but should at any rate be one of sympathetic appreciation on the part of the culture-bearing powers, not the product of a desire to profit by the ignorance and helplessness of the peoples whose well being is professedly desired.

Unfortunately for this wished-for consummation the first

information that an American or European gets regarding the backward peoples is apt to be sensational reports of their most peculiar customs, sweeping condemnations of their physical and moral condition, and usually lurid accounts of barbarities inflicted upon representatives of civilized races who may have chanced to stray among them. This distorted publicity is due partly to the willingness of newspapers and journals in Europe and America to cater to the love of the marvelous—their expectation, as goes the Spanish proverb, of "distant countries, big tales"—and partly to the desire of commercial interests to force an intervention which will render available to them the natural riches of a virgin but helpless land.

Inability or unwillingness to understand the other man's point of view has a second, and perhaps more dangerous, development here in our midst. It is the failure to understand the thoughts and actions of men of a different class or social stratum. This has some slight excuse when it concerns the representatives of distinct races living among us, but it is also maintained toward individuals of different classes whether foreign or not. Upper, middle, and lower classes attribute to each other vices of which they profess to be free themselves, and look upon actions which tend to run counter to the views or curtail the comfort of themselves, as evidences of wilful evil intent. Opinions of this kind are particularly dangerous because most people associate familiarly with only a restricted class, and when one hears the same stock accusations repeated over and over he comes to assume their absolute truth without giving himself the trouble to inquire further. Responsibility for this state of affairs rests upon all classes alike, but by far the greater measure must be shouldered by those most abundantly endowed with wealth, power, and intelligence because they also have better opportunities for ascertaining actual conditions. Too much reading and too many exchanges of opinion are for the purpose of re-enforcing prejudices rather than establishing truth and rendering justice, and in this connection I cannot refrain from expressing the opinion that the public press in America is altogether too ready to cater to the partisan demand. What we find in the news

columns is frequently rather a garbling of events than a record of events, the whole thrown purposely out of perspective in order to cater to the "policy of the paper," the prejudices of the community which it serves, or the known attitude of the financial interests supporting it or represented in its advertising columns. And such misrepresentation of the facts is still further exaggerated by the choice and placing of the heads and sub-heads, and by the editorial utterances.

I have spoken of willingness to entertain and promote misrepresentation as "dangerous." It is dangerous because misunderstanding and misrepresentation destroy sympathy between peoples of different nations, and where persisted in within the borders of any one nation tend to weaken the ties which bind classes together and, more than any other single thing—except palpable and wide-spread injustice—pave the way for those disturbances which may lead to civil war and revolution.

MINERALOGY.—*Optical properties of anthophyllite.* N. L. BOWEN, Geophysical Laboratory, Carnegie Institution of Washington.[1]

In minerals of variable composition (solid solutions) a knowledge of the corresponding variation of optical properties is often of great importance, particularly since it renders possible the determination of chemical composition by optical measurement alone in cases where no other means may be available. In attempting to check the optical properties of the pure artificial magnesian amphibole, kupfferite, against those of natural anthophyllites the writer encountered a discrepancy in the data for the natural mineral from Franklin, North Carolina. Penfield, in his description of the Franklin crystals, gives two different values for β as determined by different methods.[2] The attention of Professor Ford was called to this matter and he kindly sent me the original Penfield material, including oriented plates and wedge. The wedge, which was made by polishing natural prism faces, suffices for the measurement of two refractive in-

[1] Received June 19, 1920.

[2] Amer. Journ. Sci. **40**: 396. 1890.

dices by the method of minimum deviation, and by this method the writer obtained exactly the same values as Penfield: $\gamma = 1.6404$, $\beta = 1.6301$. The method is so thoroughly dependable that there is no reason for doubting the value of β so obtained. The other value of β given by Penfield was calculated from measurements of the optic axial angle on oriented plates in an immersion medium. The relation between the angles so observed and the true angle is given by the equations

$$\sin H_a = \frac{\beta}{n_H} \sin V$$

and

$$\sin H_o = \frac{\beta}{n_H} \sin (90 - V)$$

whence by dividing one obtains the relation

$$\frac{\sin H_a}{\sin H_o} = \tan V.$$

Therefore, by measuring both the obtuse and the acute optic axial angle in an immersion medium one can calculate the true angle without any knowledge of the index of the immersion medium. The method is very accurate and there is no reason for questioning the value of $2V$ so obtained. On the other hand, if one wishes to calculate β from such measurements, an accurate knowledge of the refractive index of the immersion medium is required. The liquid used by Penfield was potassium mercuric iodide solution, and though he gives the index of his solution, the assumption that this was in error, since it may change so readily by evaporation, is the most reasonable method of accounting for the great discrepancy between the value of β so calculated (1.6353) and that measured by minimum deviation (1.6301). Penfield evidently placed greater dependence upon the former value (1.6353), for he used it in calculating α, obtaining the result 1.6288. On the other hand, if the latter value of β (1.6301) is used, the calculated value of α is 1.6195. The whole question can best be decided by direct measurement of α. This was done in immersion liquids with Na light on a rather thick cleavage plate $\|010$, under which conditions the method

is very sensitive. The first trial, with a liquid of index 1.622, showed that α was distinctly lower and on making up a liquid of index slightly less than 1.620, no difference in refraction of liquid and mineral was observed. The determination therefore checks with the calculated value $\alpha = 1.6195$. A rough determination

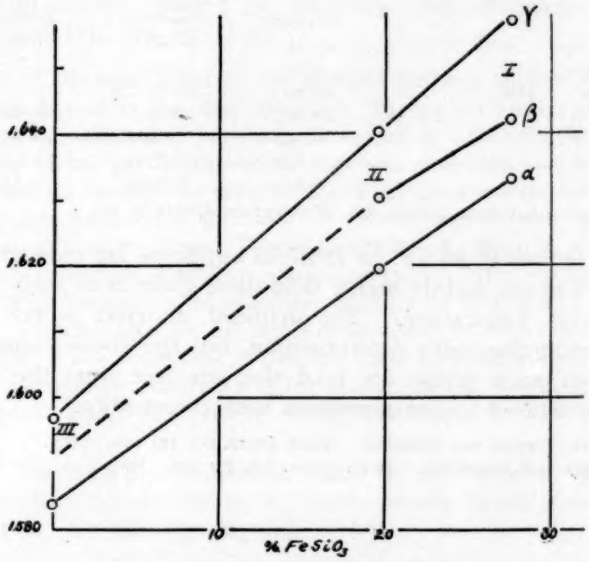

Fig. 1. Reflection indices of anthophyllite.

of the birefringence of the plate which gave the value 0.021 is also in accord with this lower value of α. From these determinations it may be stated, then, that the indices of anthophyllite from Franklin, North Carolina, are

$$\gamma = 1.6404, \beta = 1.6301, \alpha = 1.6195.$$

The optic axial angle is 88° 46′ and the birefringence $\gamma - \alpha = 0.0209$. In the text-books the erroneous value $\alpha = 1.6288$ is given as well as the correspondingly erroneous value of the birefringence $\gamma - \alpha = 0.0116$. The new values of the indices as

given above are in accord with those observed in the pure artificial mineral and in another natural anthophyllite whose Al_2O_3 content is low enough to admit comparison. The relation between refractive indices and $FeSiO_3$ content is shown in table 1 and graphically in figure 1.

TABLE 1.—CHEMICAL COMPOSITION AND OPTICAL PROPERTIES OF ANTHOPHYLLITE.

	I. Kongsberg[a]	II. Franklin	III. Artificial
SiO_2	55.16	57.98	60.00
Al_2O_3	2.65	0.63	...
$FeO + MnO$	15.04	10.70	...
MgO	23.19	28.69	40.00
γ	1.657	1.6404	1.597
β	1.642	1.6301	...
α	1.633	1.6195	1.584

[a] MICHEL-LEVY and LACROIX, *Les Mineraux des Roches*, p. 150.

The indices given for the artificial kupfferite are redetermined values and are slightly higher than those given in an early paper from this Laboratory.[3] The artificial material is not very satisfactory for index determination, but the above values are observed when grains are used that are free from the dusty effect produced by contamination with excess silica.[4]

[3] ALLEN, WRIGHT and CLEMENT. Amer. Journ. Sci. 22: 410. 1906.
[4] BOWEN and ANDERSEN. Amer. Journ. Sci. 37: 492. 1914.

ABSTRACTS

Authors of scientific papers are requested to see that abstracts, preferably prepared and signed by themselves, are forwarded promptly to the editors. The abstracts should conform in length and general style to those appearing in this issue.

ANALYTICAL CHEMISTRY.—*Application of the interferometer to gas analysis.* JUNIUS D. EDWARDS. Bur. Standards Techn. Paper **131**. Pp. 19. 1919.

One of the most useful of the physical methods applicable to gas analysis is that of gas interferometry. By the application of a new method of calibration, previously described in Scientific Paper 316, the use of the gas interferometer has been simplified and extended. The relation between the refractivities of the gases and the indications of the interferometer is discussed for various typical cases and illustrative calculations given. The determination of helium in a mixture of gases is one case of interest which is discussed. It is of importance because of the scarcity of analytical methods for determining helium. Other cases discussed are the effects of variations in the composition of air where it is a component of mixtures under test, the analysis of flue gases, the relative sensitivity of the interferometer for different gases and points about the operation of the interferometer. J. D. E.

BIOCHEMISTRY.—*Biochemical studies of the saliva in pellagra.* M. X. SULLIVAN and K. K. JONES. Public Health Reports **24**: 1068. No. 20, May 16, 1919.

In pellagra the condition of the mouth, and especially of the tongue, is of considerable importance in establishing a correct diagnosis. The true pellagrous tongue is vividly red and more or less swollen. The literature also speaks of salivation as a symptom of pellagra. In careful quantitative studies at the pellagra hospital, Spartanburg, South Carolina, it was found that, though there were cases of increased salivary flow, the salivation spoken of by the patients was often apparent rather than real and was seemingly due to some inhibition of swallowing combined with a peculiar ropy change in the saliva or high content of mucus which made the presence of saliva in the mouth more obvious. Occasionally also the flow was very slow, but in general it was within normal limits, which vary considerably. The specific gravity of the

saliva of the pellagra patients tended to be higher than that of the controls. The total solids, ash, organic matter and mucin of the saliva was greater for the pellagrins than for the controls, but bore no relation to the mouth symptoms. The diastatic power of the saliva of pellagrins varied within the limits established by the controls. The sulfocyanate content was much less marked in the saliva of pellagra patients than in that of normal people. The reaction of the saliva in pellagra was found to be somewhat more alkaline than that of normal saliva. M. X. S.

METALLOGRAPHY.—*Constitution and metallography of aluminum and its light alloys with copper and magnesium.* P. D. MERICA, R. G. WALTENBERG and J. R. FREEMAN, JR. Bur. Standards Sci. Paper **337**. Pp. 14, pls. 8, figs. 19. 1919.

The temperature-solubility curves of $CuAl_2$ and of Mg_4Al_3 in aluminum were determined by the method of annealing and microscopic examination. Aluminum dissolves about 4.2 per cent of copper as $CuAl_2$ at 525° C. and about 12.5 per cent of magnesium as Mg_4Al_3 at 450° C. The solubility of both compounds decreases with decreasing temperature. At 300° C. aluminum dissolves only 1 per cent of copper as $CuAl_2$ and slightly less than 5.9 per cent of magnesium as Mg_4Al_3.

The structural identification of the various constituents, $FeAl_3$, $CuAl_2$, Mg_4Al_3, found in alloys with magnesium and with copper, is described, and a constituent is noted in all light aluminum alloys containing magnesium which is believed to be Mg_2Si. The solubility of iron as $FeAl_3$ in aluminum is at all temperatures less than 0.15 per cent. Small amounts of silicon up to 0.12–0.20 per cent are dissolved by aluminum at the eutectic temperature but are reprecipitated upon cooling, corresponding to the diminished solubility for silicon of aluminum at lower temperatures. Silicon in the usual commercial amounts is probably present as a compound of iron and silicon, together with some aluminum. The composition of this compound is not known but it separates out with aluminum and $FeAl_3$ at an invariant point at 610° C.

R. G. W.

PROCEEDINGS OF THE ACADEMY AND AFFILIATED SOCIETIES

WASHINGTON ACADEMY OF SCIENCES

BOARD OF MANAGERS

At the 238th meeting of the Board, held on March 8, 1920, changes in the free list of the JOURNAL were considered. Mr. F. V. COVILLE was appointed as the ACADEMY'S representative at the inaugural meeting of the Board of Surveys and Maps. Nominations to membership were considered at the 239th, 240th and 241st meetings, held on March 22, April 5, and April 26. Reports from the committee on preservation of the Shaw lily-ponds were presented at the 242d meeting, on May 24, and it was voted that these reports be brought to the attention of the Engineer Commissioner with the endorsement of the officers of the ACADEMY and of other affiliated societies that might be interested. At the 243d meeting on June 28, Dr. S. F. BLAKE, of the Bureau of Plant Industry, was appointed editor of the JOURNAL to fill the unexpired term of Dr. ALEXANDER WETMORE, who had resigned on account of expected absence from Washington for a year.

The following persons have become members of the ACADEMY since the last report in the JOURNAL (May 4, 1920, p. 275):

Dr. ELLIOT Q. ADAMS, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.

Mr. S. HENRY AYERS, Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.

Dr. NORMAN L. BOWEN, Geophysical Laboratory, Carnegie Institution of Washington, Washington, D. C.

Dr. FAY CLUFF BROWN, Bureau of Standards, Washington, D. C.

Dr. NATHAN AUGUSTUS COBB, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.

Mr. W. D. COLLINS, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.

Mr. LEON DOMINIAN, Department of State, Washington, D. C.

Dr. W. E. FORSYTHE, Nela Research Laboratory, National Lamp Works of the General Electric Company, Nela Park, Cleveland, Ohio.

Mr. WILLIS RAY GREGG, Weather Bureau, Washington, D. C.

Dr. RALPH EDWIN HALL, Firestone Tire and Rubber Company, Akron, Ohio.

Dr. DAVID BREESE JONES, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.

Dr. GEORGE W. MCCOY, Hygienic Laboratory, Public Health Service, Washington, D. C.

Mr. CURTIS C. MCDONNELL, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.

Dr. EDWARD BROWNING MEIGS, Dairy Division, Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.

Dr. JOHN R. MOHLER, Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.

Dr. CLARENCE AURELIUS SKINNER, Bureau of Standards, Washington, D. C.

Dr. THOMAS ELLIOTT SNYDER, Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.

Mr. LOUIS BRYANT TUCKERMAN, Bureau of Standards, Washington, D. C.

ROBERT B. SOSMAN, *Corresponding Secretary.*

ANTHROPOLOGICAL SOCIETY

543D MEETING

The 543d meeting of the Anthropological Society of Washington was held in room 42–43 of the National Museum, at 4.45 on Tuesday, February 3, 1920. Program:

SYLVANUS GRISWOLD MORLEY, Associate of the Carnegie Institution of Washington: *The foremost civilization of Central America.* Mr. Morley traced the rise and fall of the Maya empire and by means of charcoal drawings explained the calendar systems of the ancient Yucatecans.

544TH MEETING

The 544th meeting was held jointly with the Washington Academy of Sciences in the auditorium of the National Museum, at 8.15 p.m. on Saturday, March 6, 1920. Program:

W. H. R. RIVERS: *Ethnology, its aims and needs.*

545TH MEETING

The 545th meeting was held jointly with the Washington Academy of Sciences and the Medical Society of the District of Columbia in the assembly hall of the Carnegie Institution of Washington, at 8.15 p.m. on Wednesday, March 31, 1920. Program:

Sir ARTHUR NEWSHOLME: *The national importance of child welfare work.* (See proceedings of the ACADEMY for an abstract of the lecture[1].)

546TH MEETING

The 546th meeting was held at the National Museum at 4.45 p.m. on Tuesday, April 6, 1920. Program:

J. A. JEANCON: *Antiquities of the Jemez Plateau, New Mexico.*

Among all of the areas of the Southwest which offer material for the study of American archaeology, there is not one which presents to the man engaged in research of that kind a finer and more responsive field than the Jemez Plateau of New Mexico. Some work has been

[1] This JOURNAL, **10**: 394. 1920.

done, but there remains such a vast field that many men could engage in the work for a long period, and still there would be room for more.

We are satisfied that the dwellings in the cliffs and mountain fastnesses were occupied by some of the ancestors of the people who now dwell in the Rio Grande valley, and the contiguous country. Ample legendary information is at hand; the similarity of artifacts found, and those still in use in the villages, go to prove their relationship. Inter-marriage with other peoples, and Spanish influences, have produced differences which are very apparent, but granting all of these, the pre-Columbian people did not differ a great deal from the present-day Pueblo.

There are three distinct types of dwellings on the Plateau: (1) the cavate lodge, (2) the large communal house, and (3) the small structures of only a few rooms which are supposed to have been the earliest habitations.

The pottery found in the ruins presents a great variety of form and design, but it is unlike that of other areas. Occasionally we find outside influences creeping in and occurring in a local product, but, as a rule, the pottery is pronounced and distinct.

There is every reason to say that the old peoples originally came into the Rio Grande country from the north, possibly from the Mesa Verde region of southwestern Colorado. The knowledge of place names in the Montezuma Valley by the Tewa Indians is only one of the indications that the Rio Grande people came from the north. There are many other reasons. (Author's abstract.)

547TH MEETING

The 547th regular meeting (41st annual meeting) of the Anthropological Society of Washington was held at the National Museum at 4.45 p.m. on Wednesday, April 28, 1920. The meeting was devoted to reports and election of officers.

The Secretary reported that while during the year 1918 the greater part of the lectures had dealt with the races of the Near and Far East, the program for 1919 was entirely devoted to papers dealing with anthropology and prehistoric archaeology. An innovation was provided in the first three meetings, which were devoted to field experiences of those members of the Society who had been on active field work during the preceding year. The Society lost no members by resignation or death and four new members were elected.

Officers for the season 1920–21 were elected as follows: *President*, C. HART MERRIAM; *Vice-President*, NEIL M. JUDD; *Secretary*, J. P. HARRINGTON; *Treasurer*, J. N. B. HEWITT.

FELIX NEUMANN, *Secretary*.

BOTANICAL SOCIETY

141ST MEETING

The 141st regular meeting of the Botanical Society of Washington was held at the Cosmos Club at 8 p.m. Tuesday, February 3, 1920. Seventy members and six guests were present. Messrs. R. P. MARSHALL, E. W. BRANDES, HENRY F. BAIN, S. D. GRAY, E. G. ARZBERGER, GEO. M. REED, and O. F. BERGER, of the U. S. Department of Agriculture, and Prof. RICHARD E. SCHUH, of Washington, were elected to membership.

As the retiring President for 1918, Mr. WALTER T. SWINGLE gave an address on *Chinese botany and Chinese botanists*. It was illustrated with lantern slides and by an exhibit of books. The speaker sketched the study of Chinese botany and the study of European plants and outlined plans for a more effective study of the Chinese flora.

As the retiring President for 1919, Dr. KARL F. KELLERMAN gave an address on *The effects of salts of boron upon the distribution of desert vegetation*. He stated that it appears that the portions of the deserts completely devoid of vegetation are in many cases contaminated with borax deposits. It also seems clear that the salts of boron must be regarded as of fundamental importance in considering ecological relationships of native plants, and also in considering the agricultural use of land or water in regions containing natural deposits of these salts.

142D MEETING

The 142nd regular meeting of the Botanical Society of Washington was held at the Cosmos Club at 8 p.m. Tuesday, March 2, 1920. Ninety-seven members and ten guests were present. Dr. F. E. KEMPTON, of the U. S. Department of Agriculture, was elected to membership.

Brief notes and reviews of literature

Mr. M. B. WAITE exhibited a number of panicles of *Paulownia tomentosa*, commonly planted as an ornamental tree in Washington, D. C., and often escaping from cultivation. This tree, a native of Central China, not Japan, as often stated, is remarkable in that the flowering panicles, often a foot in length, fully formed in summer with large naked buds, go through the winter with no protection except the wool on the calyx. The statement of Mr. W. T. SWINGLE at a previous meeting that this tree was an immigrant from the tropics into the temperate regions of China, might explain the origin of the peculiar naked panicles. This Paulownia has evidently been able to make the necessary physiological adjustments to become cold-resistant, standing temperatures of 0° to possibly −15° F., but has not made the usual morphological adjustments of temperate-zone trees by covering its cluster-buds or individual flower buds with protective bud scales.

Mr. C. V. PIPER exhibited specimens of bastard toad-flax (*Comandra pallida* A. DC.) which has recently been found parasitic on the roots of

apple trees in orchards at Wenatchee, Washington, where it has occasioned alarm. This species occurs over the region from Minnesota to the State of Washington, south to New Mexico, but not in California. No data concerning its natural host plants are available in the literature, but herbarium labels record Quercus and Cercocarpus positively, and with some doubt Pinus and Populus. Doubtless the hosts are numerous. The eastern analogue, *C. umbellata*, has never been recorded as attacking cultivated plants. It is of interest that the nuts of *C. pallida* are edible. Palmer, in 1878, states that the Pah-ute Indians eat the fruits, and Piper, in 1901, records that they are eaten in Washington by children as well as by swine.

Dr. DAVID GRIFFITHS reviewed the first volume of *The Cactaceae* by N. L. BRITTON and J. N. ROSE (Carnegie Institution, Publication No. 248). He referred to the treatment of *Opuntia lindheimeri* as characteristic: "Certain forms have been described which in cultivation we have been able to recognize as possibly distinct; but in the field they seem to intergrade with other forms. In fact, all the plants described as species which are cited above in the synonomy grow within a relatively small distributional area." This small distributional area extends from the Coast to the highlands of the Lower Pecos, and from the alluvial saline delta of the Rio Grande to the cretaceous of the Edwards Plateau, and a similar distance in the other direction to Tampico. The species, according to the monograph, extends over close to 75,000 square miles of territory. It was the conclusion of the late lamented Professor BERNARD MACKENSEN, that each change of soil produced a different cactus flora in southern Texas. But Professor Mackensen, after making his field studies, grew the plants in his garden, a practice which the authors appear to think is likely to lead the systematist into error. The type locality of *O. lindheimeri* is the detritus at the base of the Edwards Plateau. Two colored illustrations are given. They are both from the delta of the Rio Grande, 260 miles distant.

O. leptocarpa, of Mackensen, is considered by the authors to be a hybrid between *O. lindheimeri* and *O. macrorrhiza*—a hybrid which the reviewer had not been able to produce artificially. The reasons given for the supposed hybridity are two in number. (1) The three species are often found growing together and (2) the supposed hybrid is intermediate in stature between the other two. The so-called hybrid reproduces true from seed. The parent plants of the synonomy of *O. lindheimeri* are reproduced with remarkable fidelity from seed. Cross-pollinations on *O. lindheimeri* have produced nothing but maternal inheritance thus far.

Dr. Griffiths also exhibited a few colored illustrations of the species included in *O. lindheimeri*. The eleven plates that were displayed constitute about one-third of the illustrated evidence available on this remarkable species. Two colored plates illustrating *O. basillaris* also were shown. The authors have decided that one of these is an anomalous form of the other.

Regular Program

Mr. IVAR TIDESTROM read an illustrated paper on the *Flora of Utah and Nevada*. He said that no region within the limits of the United States is marked by a more diversified flora than that of the Great Basin. Its plains and desert areas are found at an elevation of 600 to 1,500 meters above sea-level while its numerous mountain ranges rise in some instances above 3,900 meters altitude. Within this region we find the northern boundary between the flora of Mexico and that of western North America. This line coincides with the upper limit of *Covillea glutinosa*, *Yucca mohavensis* and *Cleistoyucca arborescens*.

In the West-American Dominion there are several characteristic belts, the lowest of which is dominated by *Artemisia tridentata*. The latter has a wide range as it ascends to 3,000 meters elevation or more on exposed slopes. At 1,500 meters above sea-level, the pinon and its associated Juniperus species becomes the dominant element. Above the pinon, especially on the plateau, *Pinus scopulorum* rules. This species forms forests in New Mexico and Arizona. Adjoining the pinon and ascending higher (2,700 meters or more) the aspen becomes the dominant element. In central Nevada *Cercocarpus ledifolius* replaces to a large extent the aspen. At 2,700 meters above sea-level *Picea engelmanni* and associated Abies species forms the spruce-belt. The belt is succeeded by the alpine flora of which many species are circumpolar.

Dr. P. J. S. CRAMER, Chief of the Division of Plant Breeding, Department of Agriculture, Java, spoke on *Problems in tropical plant breeding*. He confined his remarks principally to breeding with the rubber plant *Hevea brasiliensis*, giving a brief description of the cultural methods employed. He stated that good strains may be developed from seedlings but more success may be expected from budded plants if buds are used from the highest yielders. Budded rubber plants sometimes show a tendency to low branching, but proper selection of buds will prevent this. If the top of the branch is used as a scion the graft will not develop a stem, but if the top of the stem or leader is used, a normal tree is obtained.

CHAS. E. CHAMBLISS, *Recording Secretary*.

SCIENTIFIC NOTES AND NEWS

MATTERS OF SCIENTIFIC INTEREST IN CONGRESS[1]

The Agricultural Appropriation Bill for 1920–21 (H. R. 12,272) passed the House on February 14, and passed the Senate, with amendments, on March 26. Three conferences were necessary before the final agreement was reached on May 29. The bill was approved on May 31 as Public Law No. 234.

The Department of Agriculture, which receives, according to Dr. Rosa's figures recently published in this JOURNAL,[2] 63 per cent of the Federal Government's appropriations for "research, education and development," is granted $31,475,368 by this Act. The bureaus which are devoted entirely or in part to scientific work receive the following appropriations, stated in round numbers:

Weather Bureau	1.9 million
Bureau of Animal Industry	5.5 million
Bureau of Plant Industry	2.8 million
Forest Service	5.9 million
Bureau of Chemistry	1.3 million
Bureau of Soils	0.5 million
Bureau of Entomology	1.1 million
Bureau of Biological Survey	0.8 million
States Relations Service	4.9 million
Bureau of Public Roads	0.5 million
Bureau of Markets	2.5 million

The Sundry Civil Bill for 1920–21 (H. R. 13,870) passed the House on May 11, and the Senate on May 26 (with amendments); the conference report was agreed to on June 2 and the bill became Public Law No. 246, on June 5. This Act includes appropriations for the Public Health Service, National Advisory Committee for Aeronautics, Smithsonian Institution, Geological Survey, Bureau of Mines, Reclamation Service, Coast and Geodetic Survey, Bureau of Fisheries, and Bureau of Standards.

The Public Health Service receives approximately 8.6 million, including 0.3 million for "investigations of diseases of man and conditions influencing the propagation and spread thereof," and $45,000 for the maintenance of the Hygienic Laboratory.

The National Advisory Committee for Aeronautics receives 0.2 million for research in the field of aeronautics.

The Smithsonian Institution receives approximately 0.75 million, including $44,000 for ethnological researches, $13,000 for the Astrophysical Observatory, and $80,000 for additional land for the National Zoological Park.

[1] Continued from page 400.

[2] This JOURNAL, 10: 350. 1920.

The Geological Survey receives approximately 1.7 million, including $125,000 for investigation of the so-called "super-power project" for a comprehensive system of electrical power generation and distribution in the Boston-Washington industrial district.

The Bureau of Mines receives approximately 1.3 million, including about 0.4 million for investigations of the causes of mine explosions and the study of methods of mining.

The Reclamation Service receives approximately 8.5 million for its engineering work.

The Coast and Geodetic Survey receives approximately 2.0 million, including about 0.4 million for surveys and resurveys of coasts, and about 0.1 million for geodetic and magnetic work. The title of "superintendent" of the Survey is changed to "director."

The Bureau of Fisheries receives approximately 1.2 million, including $45,000 for "inquiry into the causes of the decrease of food fishes in the waters of the United States," and a reappropriation of unexpended balance for cooperative work with the Bureau of Standards on "new aquatic sources of supply of leather."

The greater part of the Bureau of Standards' appropriations are carried in the Legislative, Executive and Judicial Act,[3] but the present Act carries additional items of $40,000 for the testing of large scales and $47,272 for the purchase of additional land; it also directs the Bureau to investigate the quality and cost of gas in the District and make a report thereon in December, 1920.

The salaries of commissioned officers of the Coast and Geodetic Survey are increased through Public Law No. 210, "An Act to increase the efficiency of the commissioned and enlisted personnel of the Army, Navy, Marine Corps, Coast Guard, Coast and Geodetic Survey, and Public Health Service," which provides that commissioned officers of the Survey "shall receive the same pay and allowances as now are or hereafter may be prescribed for officers of the Navy with whom they hold relative rank." The director of the Survey holds the rank of captain in the Navy. The Comptroller of the Treasury has ruled that the change of status takes effect from the passage of the Act, but the pay increases are in effect from January 1, 1920.

The Army Reorganization Bill[4] (H. R. 12,775) passed the Senate on April 20, and after two conferences, was agreed to on May 29 and became Public Law No. 242 on June 4. The Act establishes the Chemical Warfare Service as a separate service in the Army, under the direction of a Chief with the rank of Brigadier General, and with 100 officers and 1,200 enlisted men. The Service is "charged with the investigation, development, manufacture, or procurement and supply to the Army of all smoke and incendiary materials, all toxic gases, and all gas-defense appliances; the research, design, and experimentation connected with chemical warfare and its material; and chemical pro-

[3] This JOURNAL, **10**: 399. 1920.

[4] This JOURNAL, **10**: 244. 1920.

jectile filling plants and proving grounds; the supervision of the training of the Army in chemical warfare, . . . ; the organization, equipment, training, and operation of special gas troops. . . ."

H. R. 9,781, to permit the transmission of poisons through the mails by physicians and chemists, by amending Section 217 of the Criminal Code, Act of March 4, 1909, passed the House on April 5, and the Senate on May 3; the conference report was agreed to on May 18, and the bill became Public Law No. 216 on May 25.

The Nolan bill (H. R. 11,984) to increase the force and salaries in the Patent Office[5] passed the Senate on June 4, with S. 3,223 (authorizing the Federal Trade Commission to accept and administer inventions and patents for the public)[6] added as an amendment. The bill as thus amended met with opposition from industrial chemical interests on the ground that it would give undue advantage to Government inventors. At the request of Mr. NOLAN, a committee consisting of Messrs. F. G. COTTRELL, C. L. ALSBERG and ANDREW STEWART, have undertaken to draft further amendments.

The general subject of the nitrogen fixation plants was made the subject of an investigation by a select committee of the House, which rendered a report in May.[7] The committee divided in its report and recommendations on strictly political lines.

A hearing was held on May 21 on S. Res. 165 concerning the Botanic Garden.[8] Dr. N. L. BRITTON, director of the New York Botanical Garden, and a number of Washington botanists, attended. Removal of the Garden to Mt. Hamilton, in the northeastern part of the District, was strongly recommended by members of the Fine Arts Commission. On the occasion of the 100th anniversary of the Garden in June, Representative NELSON, of Missouri, secured leave to print in the *Congressional Record* a speech opposing the removal of the Garden from its present site.

The Second Session of the Fifty-Sixth Congress adjourned *sine die* on June 5. The next regular session will begin on December 6, 1920.

NOTES

The name of the Maryland State College of Agriculture, at College Park, near Washington, was changed on July 1 to "The University of Maryland." The institution was merged with the older University of Maryland, which had medical and law schools in Baltimore. The Board of Trustees of the State College becomes the Board of Regents of the University, and the headquarters of the University will be at College Park.

[5] This JOURNAL **10**: 243. 1920.

[6] This JOURNAL **10**: 400. 1920.

[7] See This JOURNAL **9**: 646. 1919; **10**: 244. 1920. A thorough summary of the report was published in Chem. Met. Eng. **22**: 993–996. May 26, 1920.

[8] This JOURNAL **9**: 563. 1919.

A party of twenty Czecho-Slovak professors and teachers, officers of Czecho-Slovak troops on their way back to Europe, visited Washington on July 3 to study the educational institutions and museums of the city.

Mr. H. S. BAILEY, formerly of the Bureau of Chemistry, U. S. Department of Agriculture, resigned his position with E. I. du Pont de Nemours and Company on July 1, to take charge of research for the Southern Cotton Oil Company at Savannah, Georgia.

Dr. ELMER D. BALL, of the Iowa Agricultural College, has been appointed Assistant Secretary of Agriculture, and assumed office on June 12.

The degree of Master of Science was conferred on Major EDWARD HALL BOWIE, forecaster of the U. S. Weather Bureau, at the Commencement of St. John's College, Annapolis, Maryland, on June 11.

Dr. ALFRED H. BROOKS, of the U. S. Geological Survey, received in June the honorary degree of Doctor of Science from Colgate University.

Dr. ARTHUR F. BUDDINGTON, of the Geophysical Laboratory, Carnegie Institution of Washington, has accepted the position of assistant professor of geology at Princeton University.

Mr. EARL P. CLARK, assistant in chemistry at the Rockefeller Institute for Medical Research, New York City, has joined the chemical staff of the Bureau of Standards.

Mr. W. D. COLLINS, of the Bureau of Chemistry, U. S. Department of Agriculture, has been appointed chief of the quality-of-water division of the U. S. Geological Survey.

Dr. F. G. COTTRELL, of the Bureau of Mines, was elected chairman of the Division of Chemistry and Chemical Technology of the National Research Council for the year ending July 1, 1921, at the annual meeting of the Division held on May 7.

Dr. N. E. DORSEY, who recently resigned as chief of the radium and X-ray section of the Bureau of Standards, in order to take up private consulting and testing work, has been retained by the Bureau in the capacity of consulting physicist, while continuing his private work.

Mr. W. F. FOSHAG, of the division of mineralogy, U. S. National Museum, spent May and June in collecting minerals in California.

Mr. ANDRE GOELDI, of Para, Brazil, has presented to the grass herbarium of the National Museum an exceptionally complete and well-prepared collection of grasses from Brazil, consisting of 299 specimens.

Major General WILLIAM CRAWFORD GORGAS, U. S. A. (Retired), formerly surgeon general of the United States Army, and a resident member of the ACADEMY, died in London, England, on July 4, 1920, in his sixty-sixth year. General Gorgas was born at Mobile, Alabama, October 3, 1854, and was appointed a surgeon in the United States

Army in 1880. He became widely known by his work in eradicating yellow fever from Havana after the war with Spain, and malaria and yellow fever from the Canal Zone during the construction work on the Panama Canal. He reorganized the Medical Corps for the war with Germany, and in 1919, after retirement from the Army, became director of the International Health Board of the Rockefeller Foundation.

Dr. FRANKLIN L. HUNT, physicist in the aeronautic instruments section of the Bureau of Standards, who has been detailed to Paris, France, for a period of twelve months, to serve as the Bureau's representative in relations with the scientific and aviation authorities of England, France, Italy, Belgium and Holland, is expected to return about the first of October. The exchange of technical information in connection with aviation matters has been greatly facilitated through courtesy of the Commercial Attaché Service of the Department of Commerce.

Dr. H. R. KRAYBILL, assistant physiologist in the Bureau of Plant Industry, U. S. Department of Agriculture, has resigned to accept the position of professor of agricultural chemistry and head of the department of chemistry at the Experiment Station of New Hampshire State College, Durham, New Hampshire.

Col. ARTHUR B. LAMB, director of the U. S. Fixed Nitrogen Research Laboratory, American University, will return to Harvard University as professor of chemistry, on September 1. Major R. C. TOLMAN, at present associate director, will at that time become director of the Laboratory.

Mr. O. C. MERRILL, formerly chief engineer of the Forest Service, has been appointed executive secretary of the newly-established Federal Power Commission, which will administer the Water Power Act passed in June by Congress. The members of the Commission are the Secretaries of War, Interior, and Agriculture.

Dr. E. W. NELSON, chief of the Bureau of Biological Survey, U. S. Department of Agriculture, received the honorary degree of Master of Arts from Yale University in June.

Mr. HELGE OHLSSON, of the Royal Hydrographic Service of Sweden, visited the United States in June for the purpose of studying the hydrographic, geodetic, and magnetic work of the U. S. Coast and Geodetic Survey.

Dr. HARRISON E. PATTEN has resigned from the Bureau of Chemistry, U. S. Department of Agriculture, to accept a position as chief chemist with the Provident Chemical Company of St. Louis, Missouri. Dr. Patten will also do consulting work in food chemistry and chemical engineering.

Mr. WALDEMAR T. SCHALLER, who has been engaged in work for the Great Southern Sulphur Company, at Orla, Texas, for the past few months, has severed his connection with that company and has resumed his work in Washington.

Dr. GEORGE OTIS SMITH, director of the U. S. Geological Survey, received the honorary degree of Doctor of Laws from Colby College in June.

Professor AUGUSTUS TROWBRIDGE, professor of physics at Princeton University, has been elected chairman of the Division of Physical Sciences of the National Research Council for the year ending July 1, 1921.

Dr. RODNEY H. TRUE, of the Bureau of Plant Industry, U. S. Department of Agriculture, resigned in July to accept the position of professor of botany at the University of Pennsylvania.

Correction: The JOURNAL was in error in an item on p. 402 of the preceding issue, in stating that there was doubt as to the legality of the recess appointment of Professor M. T. BOGERT to the Tariff Commission. We are informed that this appointment had not been before the Senate, and there could therefore be no question of its implied rejection through lack of action by that body before adjournment. Professor Bogert has decided not to accept the appointment.